**REPLY UNDER 37 CFR 1.116-EXPEDITED PROCEDURE-
TECHNOLOGY CENTER 1615**

REMARKS

Claims 1-23, 26-31 and 73-94 are currently pending. Claims 1 and 29 have been amended to indicate that the maximum pore size of a biopolymer membrane in its dehydrated form is about 5 microns. Support for this amendment can be found, e.g., in the previously amended claim 25 and in the specification at page 9, lines 34-36. Claims 24 and 25 have been canceled. The subject matter of claim 25 has been incorporated into claim 1. In addition, claims 32-72 have also been cancelled as being drawn to nonelected inventions. Applicants reserve the right to file continuation applications directed to canceled matter. New dependent claim 73 is supported by claim 9, which recites a calcium containing compound. New dependent claims 74-94 correspond to original claims 3, 4, 6-19, 21, 26-28 and new claim 73, respectively, except that they ultimately depend from claim 29 rather than claim 1. The amendment of the claims does not add new matter.

1. **The Invention**

Claim 1, as amended herein, is directed to a multilayered biocompatible structure comprising a biopolymer membrane and a biopolymer product in contact with the biopolymer membrane. The biopolymer membrane, in its substantially dry form, has a thickness equal to or less than about 75 microns, a solvent content less than about 5% by weight of the membrane, a radius of curvature of less than about 5 centimeters, a density greater than about 1 g/cm^3, and a **maximum pore size in its compressed, dehydrated form of about 5 microns**, and in its hydrated form of about 20 microns.

One of the characteristics of the present biopolymer membrane is that its maximum pore size when rehydrated is about 20 microns and in its compressed, dehydrated form is about 5 microns. See, e.g., paragraph [0035] of the present published patent application. Thus, the pore size of the biopolymer membrane changes depending upon whether it is in its compressed, dehydrated form or its hydrated form. This pore size variability is due in part to the compression of the membrane, which is performed as the final process of biopolymer membrane preparation

(see, e.g., paragraphs [0066] – [0071]). Relatively small pore size when the structure is dehydrated is advantageous in improving the mechanical properties of the membrane to avoid fracturing of the membrane during handling. Relatively large pore size when the structure is rehydrated allows increased cell penetration as compared to a structure without variable pore size. Increased cell penetration is a desirable property of the structure when used as artificial skin.

2. Rejection of Claims 1-9, 15, 17-26, and 29-31 under 35 U.S.C. §103(a)

Claims 1-9, 15, 17-26, and 29-31 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Delmotte et al. (U.S. Patent No. 5,989,215). To summarize the Office's position, it is said that the structure described by Delmotte is as claimed, except for the radius of curvature, solvent content and density which are considered to be previously unknown or unrecognized features of Delmotte's structure or features that would have been manipulated and within the skill of one in the art.

The amended claims require an additional feature which distinguishes the claimed structure from that of Delmotte - its pore size when in compressed dehydrated form. As explained in section 1 above, the claimed structure is made differently than the Delmotte structure so that the pore size of the biopolymer membrane expands when rehydrated. Delmotte's structure is not hydrated after drying and compressed as is the structure of the present invention. As Delmotte fail to suggest hydrating and compressing the fibrin film, there is no motivation to modify the reference to obtain a biopolymer membrane having the pore size as claimed. Furthermore, Delmotte's structure does not have a decompressed form as required in the pending claims because Delmotte does not suggest decompression of his fibrin film. Not only would the Delmotte reference provide no motivation or suggestion to decompress the fibrin film described therein, it also provides no guidance to one skilled in the art to also modify the fibrin film to have the solvent content, radius of curvature, and density as required by the

pending claims. As such, the biopolymer membrane as claimed would not have been obvious over the fibrin film of the '215 patent.

As the Delmotte et al. reference fails to teach or suggest each and every limitation of claim 1, and further, as there is no suggestion or motivation to modify the Delmotte et al. reference to arrive at each and every limitation of claim 1, claim 1 cannot be said to be obvious in view of the cited reference.

Claims 2-9, 15, 17-23 and 26 directly or indirectly depend from claim 1. As such, claims 2-9, 15, 17-23 and 26 are patentable for the same reasons as claim 1 set forth above as well as for the additional elements they require.

Claim 29 is similar to claim 1 and further requires the multilayered biocompatible structure to comprise a first blend of a biomaterial and thrombin defining a biopolymer membrane and a second blend of a biomaterial and thrombin defining a biopolymer product. Claim 29 is patentable for the same reasons as claim 1 set forth above, as well as for the additional elements it requires. Claims 30-31 depend directly on claim 29. As such, claims 30-31 are patentable for the same reasons as claim 29, as well as for the additional elements they require.

3. Rejection of claims 27-28 under 35 U.S.C. §103(a)

Claims 27-28 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Delmotte et al. (U.S. Patent No. 5,989,215) in view of Sierra et al.

Claims 27-28 depend directly on claim 1, which is discussed above. Claim 1 is patentable for the reasons set forth above.

Sierra et al. fail to overcome the above shortcomings. Specifically, Sierra et al. disclose a general review of fibrin sealants, the mechanical properties of the fibrin sealants, and clinical applications of the fibrin sealants. In discussing the mechanical properties of the fibrin sealants,

Sierra et al. suggest that the structure of fibrin gel to be used as a sealant may be altered by changing any one of several factors. In one embodiment, Sierra et al. disclose that a decrease in gelation time or an increase in ionic strength or pH can cause the formation of small diameter fibrils and pores in the gel structure.[1] As with Delmotte et al., the Sierra et al. reference fails to disclose a biopolymer membrane having the maximum pore size in decompressed dehydrated form, solvent content, radius of curvature, and density as claimed. Based on the foregoing, Sierra et al. fail to remedy the shortcomings of the Delmotte et al. reference. As such, the addition of Sierra et al. does not make claims 27-28 obvious in view of the Delmotte et al. reference.

4. **Rejection of Claims 10-11 under 35 U.S.C. §103(a)**

Claims 10-11 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Delmotte et al. (U.S. Patent No. 5,989,215) in view of Lee et al. (U.S. Patent No. 4,344,190).

Claims 10-11 depend indirectly on claim 1, which is discussed above. Claim 1 is patentable for the reasons set forth above.

Lee et al. fail to overcome the above shortcomings. Specifically, Lee et al. disclose a push-fit plug for the medullary canal of a bone, having a portion with sides adapted to be a push fit in the medullary canal. The plug is made of a biodegradable material. Specifically, the plug of Lee et al. is manufactured from a biodegradable material comprising stabilized ox fibrin mixed with 35% glycerol as a plasticizer. As with Delmotte et al., the Lee et al. reference fails to disclose a biopolymer membrane having the maximum pore size in decompressed dehydrated form, solvent content, radius of curvature, and density as claimed.

[1] Sierra et al. at page 325.

Based on the foregoing, Lee et al. fail to remedy the shortcomings of the Delmotte et al. reference. As such, the addition of Lee et al. does not make claims 10-11 obvious in view of the Delmotte et al. reference.

5. Rejection of Claims 10 and 11 under 35 U.S.C. §103(a)

Claims 10 and 11 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Delmotte et al. (U.S. Patent No. 5,989,215) in view of Redl et al. (U.S. Patent No. 4,631,055).

Claims 10 and 11 depend indirectly on claim 1, which is discussed above. Claim 1 is patentable for the reasons set forth above.

Redl et al. fail to overcome the shortcomings of the Delmotte reference. Specifically, Redl et al. disclose fibrin seals incorporating antibiotics such as gentamycin, neomycin, and Polymyxin E. Specifically, Redl et al. investigate the properties of the fibrin seal-antibiotic mixtures with regard to their potential application in bone surgery. As with Delmotte et al., the Redl et al. reference fails to disclose a biopolymer membrane having the maximum pore size in decompressed dehydrated form, solvent content, radius of curvature, and density as claimed. Based on the foregoing, Redl et al. fail to remedy the shortcomings of the Delmotte et al. reference. As such, the addition of Redl et al. does not make claims 10 and 11 obvious in view of the Delmotte et al. reference.

6. Rejection of Claim 12 under 35 U.S.C. §103(a)

Claim 12 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Delmotte et al. (U.S. Patent No. 5,989,215) in view of Herrin et al. (U.S. Patent No. 3,919,414).

Claim 12 depends indirectly on claim 1, which is discussed above. Claim 1 is patentable for the reasons set forth above.

Herrin et al. fail to overcome the above shortcomings. Specifically, Herrin et al. disclose compositions involving the combination of urokinase and certain 1-guanidinoalkyl-ω-sulfate esters. These compositions are used to accelerate the lysis of blood clots. As with Delmotte et al., the Herrin et al. reference fails to disclose a biopolymer membrane having the maximum pore size in decompressed dehydrated form, solvent content, radius of curvature, and density as claimed. Based on the foregoing, Herrin et al. fail to remedy the shortcomings of the Delmotte et al. reference. As such, the addition of Herrin et al. does not make claim 12 obvious in view of the Delmotte et al. reference.

7. **Rejection of Claim 13 under 35 U.S.C. §103(a)**

Claim 13 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Delmotte et al. (U.S. Patent No. 5,989,215) in view of Reich (U.S. Patent No. 5,674,488).

Claim 13 depends indirectly on claim 1, which is discussed above. Claim 1 is patentable for the reasons set forth above.

Reich fails to overcome the above shortcomings. Specifically, Reich discloses a method for lowering blood cholesterol levels by administering to a human suffering from hypercholesterolemia an effective amount of a delta 5 hydrogenating enzyme. As with Delmotte et al., the Reich reference fails to disclose a biopolymer membrane having the maximum pore size in decompressed dehydrated form, solvent content, radius of curvature, and density as claimed. Based on the foregoing, Reich fails to remedy the shortcomings of the Delmotte et al. reference. As such, the addition of Reich does not make claim 13 obvious in view of the Delmotte et al. reference.

**REPLY UNDER 37 CFR 1.116-EXPEDITED PROCEDURE-
TECHNOLOGY CENTER 1615**

8. Rejection of Claim 16 under 35 U.S.C. §103(a)

Claim 16 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Delmotte et al. (U.S. Patent No. 5,989,215) in view of Antanavich et al. (U.S. Patent No. 5,585,007).

Claim 16 depends indirectly on claim 1, which is discussed above. Claim 1 is patentable for the reasons set forth above.

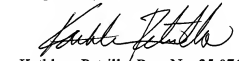
Antanavich et al. fail to overcome the above shortcomings. Specifically, Antanavich et al. disclose a device with a disposable cartridge for preparing tissue sealant. The tissue sealant is made by mixing a platelet-rich plasma concentrate with a solution of calcium and thrombin. In one embodiment, the platelet-rich plasma concentrate can comprise 5 to 400 mg/ml of fibrinogen. Once prepared, the tissue sealant is immediately applied to a wound. As with Delmotte et al., the Antanavich et al. reference fails to disclose a biopolymer membrane having the maximum pore size in decompressed dehydrated form, solvent content, radius of curvature, and density as claimed. Based on the foregoing, Antanavich et al. fail to remedy the shortcomings of the Delmotte et al. reference. As such, the addition of Antanavich et al. does not make claim 16 obvious in view of the Delmotte et al. reference.

**REPLY UNDER 37 CFR 1.116-EXPEDITED PROCEDURE-
TECHNOLOGY CENTER 1615**

CONCLUSION

In view of the above, Applicant respectfully requests favorable reconsideration and allowance of all pending claims. The Commissioner is hereby authorized to charge any additional fees in connection with this response to Deposit Account Number 19-1345 in the name of Senniger Powers.

Respectfully submitted,



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